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WORLD EPIDEMIOLOGY REVIEW

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This serial publication, based on worldwide press and radio reports, contains information on the epidemiology of human, animal, and plant diseases. Disease incidence, reported outbreaks, and various related epidemiological factors are included. Items are presented by country of occurrence rather than by country of original press report.

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I. HUMAN DISEASES

ANGOLA

TYPHOID FEVER EPIDEMIC CONTAINED

Luanda JORNAL DE ANGOLA in Portuguese 22 Dec 76 pp 1, 2

[Text] There has been some speculation about the epidemic that broke out in the Uige province about two months ago. Although the health services have been sending out frequent reports on the situation, rumors and conjectures have not ceased.

Some say one thing, others something else: And obviously, the resistance has been taking advantage of the situation to further their own moribund objectives.

With the view, therefore, of obtaining complete clarification of the actual situation created by the epidemic outbreak in Uige, we got in touch with Dr Amilcar Martins, head of the epidemiology department at the public health headquarters, in order that he might provide us and our readers with all the data available on the subject.

We called the readers' special attention to the warning that Comrade Amilcar Martins issued, relative to the people's need to pay greater heed to personal and collective hygiene, for this is the surest means of defense against almost any kind of illness.

Water the Main Cause of the Epidemic

Speaking to our reporters, Comrade Amilcar Martins began by explaining the ratio and character of the epidemic which has affected Uige province: "As happens in many of the country's towns, for a number of reasons the treatment of drinking water was not carried out in the best and most reliable manner. At times, it was because of the breakdown in the treatment plants' machinery; other times because of the temporary lack of [continuation of this passage is illegible]

It happens therefore that in many of the country's towns as well as here in Luanda, the water in the public water supply is not properly purified. This has happened from time to time at one place or another. And it has been verified here in Uige.

Besides the breakdown in some of the treatment plants' machinery, there is also a lack of some compounds used in the purification of the water, as for example, chlorine and aluminum sulphate.

This happened in October. But at the moment, the situation has now changed.

Because of this, the Uige population had to drink water that was not proper for human consumption.

On the other hand, the Uige area has had nutritional problems, chronic since the second war of liberation which considerably lowered the population's physical resistance on a widespread scale.

In particular there is a lack of animal proteins.

What happened, therefore, in Uige, was that the water was contaminated with salmonella (salmonella is the causative agent of typhoid fever).

Several cases of typhoid fever have appeared in Uige. It goes without saying that here there also exists a factor of an educational nature: the Uige people's propensity for traditional medicine on the one hand, and the existence, on the other, of private clinics run by nurses, whether registered or not, persons who have taken advantage of the opportunity to practice medicine.

And then, in Uige there are some small private treatment centers. People have fallen ill and have begun either to resort to traditional medicine or have recourse to treatment outside the hospital. Only in the last stage of their illness do they begin to arrive at the hospital, when already in an advanced condition. As a result, in November, an increase was noted in the number of deaths at the hospital.

The doctors who work there tried to find an explanation for this increase in the death rate, but being unable to arrive at a correct interpretation, asked us for help. We went there, studied the situation, and took several hypotheses under consideration. Included among these hypotheses was a gastro-intestinal disease or a blood disease--a hematic disease.

And because a hematic disease caused by a virus had been found in the Zaire republic, we did not exclude this hypothesis. We took blood samples, as well as blood samples for a disease of the digestive tract which we treated here. Other samples were sent abroad.

There Was an Outbreak of Typhoid Fever

The first results of the samples from here indicated typhoid fever and of the 19 patients who were analyzed, 16 showed positive typhoid fever results. Of the analyses that went abroad, we received results from only one American laboratory. According to the first laboratory reactions, they were negative for any hematic disease known in Africa.

However, they were going to make the analysis by using culture media to get more exact results.

We still have not received any answer from the other foreign laboratories. However, what actually happened is that there was an outbreak of typhoid fever in Uige, an outbreak which is now over. We came from there last Thursday and we found only malaria cases in isolation. Only patients who had a fever and were carriers of malaria were isolated.

As regards the water treatment plant, EPAEL was already there trying to start operating the plant and Health has already guaranteed the purification of the water, starting right from the time when we detected that it was not fit for human consumption.

Results of Undernourishment

Other than Uige, has any similar case appeared in any other province?

Well, typhoid has always existed in Angola. Every month typhoid fever in Angola appears in our epidemiology bulletins. What is the reason for this epidemic in Uige? It is caused largely by the population's physically impoverished conditions, as a result of the war and the undernourishment which is the result of the war itself. That is why in every province in the country, almost without exception, each month there is a case of typhoid fever. It is transmitted by persons who are carriers of salmonella which they defecate on the ground and from which the salmonella is transmitted to other persons.

Three Important Measures

What precautionary measures do you think should be taken to counteract this epidemic?

There are three groups of very important measures: One is personal hygiene, washing one's hands after going to the bathroom and always before eating, and daily bathing with soap and water.

Another is concerned with drinking water. Drinking water either is known to be pure or it is boiled.

The third and most important point is the custom of defecating on the ground. One should defecate in the appropriate places, in privies and in latrines built for the people. We are even considering that next year one of our programs will be a campaign for the construction of sanitary privies as a step toward initiating better hygienic conditions for the people, particularly with respect to prevention of diseases of the digestive tract.

Control of Water and Sanitation Established

Regarding other provinces where the problem of water treatment also exists, have any preventive measures been taken to counteract cases similar to those recorded in Uige?

All provincial health administrators have been alerted to these problems and here day in and day out, we constantly receive requests, as for example, one from Huambo, to send some chlorine and aluminum sulphate. The Water and Sanitation Headquarters is now being set up, dependent, I believe, on the Ministry of Public Works, precisely to take a hard look at this problem, because the sale and supply of disinfectants for watering places and even for the maintenance of the watering places were in the hands of private groups.

Planning of Water Distribution

This department is already devising a plan for the guaranteed supply of all materials and necessary equipment for the normal operation of water treatment plants. Along this line and because this water supply serves only 15 percent of the country's population, we are studying speedy, economical and simple ways of providing water supplies at the village level. This aspect is one of high priority, for it is at the village level, a sector which encompasses 85 percent of the population, that this situation is most acutely felt.

Of more interest to us is the 85 percent of peasants who are still drinking water from rivers or lakes. The heritage we received was a poor one.

Is there any other aspect connected with this question that you would like to comment on?

Only that every measure has been taken, including vaccination of the Uige population. A sanitary cordon has been set up so that people cannot circulate either inside or outside of Uige without a health certificate to guarantee the impossibility of the disease's being spread abroad....

Comrade Amilcar Martins' interview is one more proof of the need to take all Angolan workers into consideration for the increase in support of national reconstruction, so that, in the shortest possible time we may get rid of all the terrible consequences of colonial domination and imperialist invasion of which our country has been the target during the second war of national liberation.

The deficiencies that those in charge of this sector of health have pointed out should rouse to action all those engaged in our revolutionary process, so that each day there are fewer possibilities for the people to become victims of the effects characteristic of the colonized society from which we freed ourselves only one year ago.

BRAZIL

OUTBREAKS OF TYPHOID FEVER IN GOIAS AND MINAS GERAIS DENIED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Dec 76 p 20

[Text] BRASILIA--Although two children have died from typhoid in Colinas, north of Goias, and eight adults suffering from the same disease are hospitalized in Brasilia because the area does not have any kind of medical or sanitary assistance--there is not even a health unit, a doctor or a drug-store in the place--Henrique Fanstone, the health secretary of that state, yesterday denied the existence of an outbreak of the disease after having ordered a survey of the whole area, up to then ignored by him and the authorities of the Ministry of Health.

In Minas

While the Drug Center (CEME) yesterday released a note reporting that it sent to the secretariat of Minas Gerais 50,000 doses of vaccine to combat an outbreak of typhoid uncovered in the Minas municipality of Manga, the coordinator of the southeast region, Bichat de Almeida, explained that there is no outbreak of the disease in the mentioned city and that only four cases of typhoid fever have been diagnosed to date.

STATISTICS ON SCHISTOSOMIASIS IN SAO PAULO RELEASED

Sao Paulo FOLHA DE SAO PAULO in Portuguese 19 Dec 76 p 90

[Article by Prof Vicente Amato Neto]

[Text] Schistosomiasis mansoni, popularly known as "xistosomose" and "xistosa," is a verminosis caused by Schistosoma mansoni which at this time is affecting between 8 million and 14 million persons in Brazil, according to estimates that still are not borne out by fully supported evidence. It is an illness that at times creates serious organic disorders which are responsible for varying degrees of suffering, total or partial incapacitation, and, in some instances, even death. Intestinal and hepatic lesions are most common as a result of the activity of the mentioned helminth, but attacks on other organs are also included in the damage uncovered in individuals suffering from that parasitosis.

Schistosomiasis mansoni, in the spread of which the snails classified under the genus Biomphalaria take part, is rather widespread in some regions of Brazil, and the number of infected inhabitants in them is estimated to be very large. Such a situation applies to the states of Alagoas, Bahia, Minas Gerais, Paraiba, Pernambuco, Rio Grande do Norte and Sergipe. In the meantime, unfortunately, sources were recently uncovered in the states of Ceara, Gois, Maranhao, Parana and Sao Paulo, and they will reach proportions of various magnitudes including the point of anxiety, as is the case in the northern section of Parana.

The state of Sao Paulo is currently in the same situation, paying tribute to the mentioned helminthiasis as a result of the basic influence of three factors: arrival of inhabitants with schistosomiasis mansoni in consequence of the intense domestic human migration, presence of snails suitable for promoting the transmission, and deficient basic sanitation. In that area, doctors and medical authorities are obliged to provide assistance to patients who contracted the helminthiasis in other states and, as a complement, to those actually infected locally and representing native threats, who are liable to increase the spread of the morbid process.

As the main purpose of these comments, we present below the figures recently collected by the State Health Secretariat of Sao Paulo concerning human infections probably contracted in Sao Paulo locations, which constitute a significant expression of the subject.

Those quantitative reports depict the current significance of one of the aspects of the matter, which should be faced on a more comprehensive fashion by the addition of a large variety of complementary concerns, as exemplified by the costly assistance to be provided to patients coming from other states, by the need to conduct biological research mostly concerning unidentified strains of Schistosoma mansoni and mutations related to the snails, by the fear of an eventual dramatic spread of the verminosis, and by the effort intended to obtain the necessary resources to counter the disease now clearly defined.

The fight against schistosomiasis mansoni depends most of all on the effect of the mode of four attitudes: (a) health education; (b) basic sanitation; (c) the use of molluscocides; and (d) specific treatment. It is well to admit, however, that there is a disparity between the ease with which schistosomiasis mansoni becomes established in a given environment and the magnitude of the corrective tasks. In the state of Sao Paulo, many types of care are repeatedly considered in order to assist and protect the population through the Campaign to Combat Schistosomiasis (CACESQ), now incorporated with the Superintendence for Control of Endemic Diseases (SUCEN). All of us wish that they, each time more actively, will be able to attain the success desired, without forgetting to do our share in that regard and to cooperate in order to achieve the desired social progress, the common denominator in countering the many transmissible diseases which do so much harm to Brazil.

Number of persons who contracted schistosomiasis mansoni in the state of Sao Paulo, by municipios, from 1957 to March of 1976:

<u>Municipalities</u>	<u>Persons</u>	<u>Municipalities</u>	<u>Persons</u>
Alfredo Marcondes	2	Miracatu	28
Americana	46	Mongagua	1
Aparecida	219	Nova Odessa	6
Assis	64	Ourinhos	356
Bananal	26	Palmital	1
Cacapava	1005	Paulinea	78
Campinas	347	Pedro de Toledo	1122
Candido Mota	3	Peruibe	79
Capital (Sao Paulo)	187	Pindamonhangaba	432
Cubatao	343	Roseira	434
Florinea	12	Santa Cruz do Rio Pardo	4
Guararema	12	Santo Andre	99
Guaratingueta	3	Santos	573
Guaruja	22	Sao Bernardo do Campo	89
Ipaussu	48	Sao Caetano do Sul	22
Itanhaem	6	Sao Jose dos Campos	1285
Itariti	750	Sao Vicente	220
Jacarei	10	Taubate	1046
Jambeiro	65	Tremembe	153
Juquia	66		

Total number of municipios: 39. Total number of persons: 9397

AUTHORITIES TO BROADEN PROGRAM AGAINST TUBERCULOSIS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 25 Dec 76 p 8

[Text] The Health Secretariat decided to extend to the whole state a program to control tuberculosis which was being carried out in only 80 health centers. Up to the end of 1977, the activity will be extended to the 840 ambulatory treatment, avoiding needless confinements, intradermic BCG vaccinations and sanitary instruction.

Upon announcing the program, Health Secretary Walter Leser explained that the activity is based on four basic premises: "1st--treatment at the local level by unspecialized doctors, with participation of specialists limited to the small number of cases that present unusual difficulties; 2nd--confinement of patients in hospitals only when the seriousness of the case requires it or there are intercurrenties (tuberculosis simultaneously with other diseases), 3rd--diagnosis by bacilloscopy and tuberculin test, with radiology constituting a complementary element in case of need; and 4th--the making of diagnoses at all health centers, either by using their own laboratories or by sending the gathered samples to the nearest laboratories."

According to the secretary, by the strategy of eliminating systematic hospitalizations, supplanting them by ambulatory treatment of patients to the extent that health centers become available, the means of assistance will be expanded and the whole area of the state will be covered.

Walter Leser discloses that the resources available for the fight against tuberculosis are hampered by poor apportionment. "In Brazil," he points out, "about 70 percent of the budgets allocated to that sector are spent in hospitalizations, a policy which today is inappropriate in view of the great effectiveness of chemotherapeutic remedies."

"The cost of a confined patient," he adds, "is 10 times higher than that of a patient treated under an ambulatory regimen. Because the Health Secretariat now limits confinements only to patients who require special care, a reduction in the cost of treating each patient is being obtained, and the amount saved will be transferred to the ambulatory area to hire and train the technical personnel. In 1975, the confinement of tuberculars cost nearly 60 million cruzeiros to the Hospital Assistance Coordination Office."

INCREASE IN MEASLES CASES CONCERNS CAMPINAS AUTHORITIES

Sao Paulo FOLHA DE SAO PAULO in Portuguese 25 Dec 76 p 14

[Text] CAMPINAS--The incidence of measles has been increasing in the past few days despite vaccination of the infantile population, creating concern for the Regional Health Division (DRS-5), which is investigating the possible causes of the increase, analyzing even the vaccine administered during the immunization campaign.

According to the explanations of regional Director Julio Henrique Basso, the high frequency of measles in Campinas, as well as in the region, is absolutely inconsistent with the measures carried out by the regional organization.

The Vaccines

"Upon becoming aware of the large increase in the incidence of measles, we had fears about the effectiveness and the quality of the vaccines used during these vaccinations," pointed out Dr Julio Henrique Basso.

In view of this possibility, a sampling of the vaccines used was sent to the Butanta Institute in Sao Paulo for an evaluation of their quality.

"We received the results yesterday, which confirm the quality of the vaccines used. In view of the report of the Butanta Institute, we must take other steps to investigate the situation."

Hypotheses

To find out the cause of the increase in the incidence of measles, the DRS-5 explained that a study must be made of the largest possible number of cases of sick children "because some factor is contributing to the increase of their frequency."

One of the hypotheses of the regional organization is that the disease is occurring among children who were not vaccinated.

Another refers to children brought into the community by the migratory influx, coming from locations where vaccination against infantile diseases is not systematically and routinely performed.

One other hypothesis referred to the quality of the vaccines used, but it is no longer valid in light of the report of the Butanta Institute.

To test the validity of these hypotheses, the regional health organization must carry out a thoroughgoing and scientific investigation designed to uncover the reason for the rise in the incidence, attacking the cause immediately.

VACCINE FOR IMMUNIZATION PROGRAM TO BE IMPORTED

Rio de Janeiro O GLOBO in Portuguese 29 Dec 76 p 5

[Text] BRASILIA--The compulsory vaccination to be instituted by the Ministry of Health as of July of next year with the start of the National Immunization Program will force the ministry to import about 6 million doses of anti-measles and Sabin antipoliomyelitis vaccines. The country still does not have the production capability to supply the demand of the program, although Minister Almeida Machado believes in the possibility that Brazil will produce antimeasles vaccine to start from the second half of 1977.

At the federal level, the Ministry of Health currently relies on immunizers manufactured by the Oswaldo Cruz Institute Foundation in Rio, which produces vaccines against bivalent meningitis and yellow fever. By 1978, it is expected that Brasvacin, a factory owned by the Sao Paulo State government which is in the process of being installed, will be producing vaccines.

There are also several private laboratories associated with the state secretariats, including the Vital Brasil and Ataulfo de Paiva, both in Rio, which could furnish vaccines through open bidding at the request of the Drug Center (CEME), to supply the needs of the National Immunization Program.

Coordination

The administration of vaccines by the state and municipal secretariats is coordinated by the Ministry of Health, which performs a supplementary role

pursuant to the dictates of the law which instituted the National Immunization Program, and it is up to the CEME, a social security agency, to acquire, store and distribute the stocks of vaccines.

An example of that supplementary role was the vaccination campaign against meningitis from January to November 1974, which covered almost 90 million people on an emergency basis during a period of 285 days. Thus, the compulsory administration of vaccines will also be performed by the secretariats through vaccination centers and units, whose distribution will be directed by the ministry itself in visits made to the states beginning next year.

Compulsory

Although smallpox has been eradicated in Brazil, vaccination against the disease will also be compulsory for children born in July 1977 and thereafter. The measure will be in effect until the extant sources in Africa are completely eradicated.

The other vaccines considered compulsory under the National Immunization Program are those against tuberculosis, whooping cough, tetanus, diphtheria and poliomyelitis.

TUBERCULOSIS REPORTED ON THE INCREASE IN ABC REGION

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 30 Dec 76 p 20

[Text] While doctors point out the negligence of patients, the socioeconomic conditions and the intense migration as the factors which are preventing a better control of tuberculosis, the incidence of the disease continues to increase in the ABC region, where 96,987 cases were confirmed and 133,228 x-rays were made up to November of this year alone. The WHO considers that tuberculosis is under control in a given region when the index of infection is 1 percent, but in Diadema alone, the arithmetical mean of positive reaction to PPD--tuberculin test--was 6.9 percent, an average which is similar to that obtained with Sao Paulo students and considerably lower than those of numerous Brazilian capitals, according to Helio Egidio Nogueira, chief doctor of the First Aid Clinic of Diadema.

Meanwhile, no new tests have been made for more than 2 months in the municipalities under the jurisdiction of the southeast regional health division because there is a lack of PPD, supplies of which are exhausted even at the Butanta Institute according to reports of the doctors of the region. PPD is used for the purpose of verifying if a person is already infected with the Koch bacillus, and it is considered by some to be more efficient than X-rays, "which do not always reveal the infection and have the disadvantage of not being recommended for youngsters under 15 years of age."

Even though tuberculosis is an endemic disease, its control, prevention and cure are considered easy in view of the fact that there are means available for such purposes. However, Dr Jose Oscar da Silva Bottas, director of the regional division, asserts that the disease constitutes the main problem of the ABC region and the chief reason why people resort to the health centers --as it happens, its incidence is greater than that of schistosomiasis, dehydration and leprosy.

Dr Jose Oscar asserts that the national program to combat tuberculosis seeks each time to reduce further the confinement of patients. "The important thing is that the patient resorts to the nearest medical unit to be treated at home, where relatives also will be checked. If the patient is confined, family unity is broken and the patient feels cast out, which hinders his recovery."

Meanwhile, the health centers of Rio Grande da Serra, Ribeirao Pires, Maua and Diadema do not have phthisiology departments, and the patients are forced to go to the medical units of Santo Andre, Sao Bernardo, Sao Caetano, and even Jabaquara and Vila Prudente, which are sections of the capital but still under the jurisdiction of the Southeast Regional Division. That is the problem of Diadema, for example, where the cases of tuberculosis are referred to the dispensary of Jabaquara. According to Dr Helio Egidio, it has not been possible up to now to find out if the cases referred to that unit are receiving continual assistance and visits from sanitary instructors. For this reason, the chief doctor of the first aid clinic of the city hired this month a social assistant, who will be in charge of checking up on the control of the disease in the patients referred to Sao Paulo.

Although officials of the Regional Health Division aver that the visits constitute an important factor in the prevention and control of the disease, the index this year reveals a contradictory situation: only 3,393 home visits were made up to November, while the number of tuberculars amounted to 96,987, and that of X-rays to 133,228.

Because tuberculosis is considered an easily contagious disease, control by means of chemoprophylaxis is regarded as one of the weapons to prevent the development of the disease in persons who show a strongly positive reaction to the tuberculin test (strong reactors), although X-rays often reveal nothing.

Social Disease

In the opinion of Dr Jose Oscar, tuberculosis is an essentially social disease which directly depends on the socioeconomic condition of the person.

That is the reason why the intense migration to the cities of the ABC threatens to increase the index of tuberculosis more and more, according to the Regional Health Division. On the other hand, according to Dr Helio Egidio, the problem becomes even worse when a city, such as Diadema, lacks basic

sanitation and receives 3,000 new registrations monthly in the child care centers. "Since there is no way to prevent the constant migration," he goes on, "nor to offer better living conditions in terms of basic sanitation, it is necessary to eliminate gradually the endemic areas from where the majority of the migrants come."

Dr Jose Oscar, of the regional division, agrees that the migration is the greatest threat, asserting that the persons coming mainly from Minas and the Northeast arrive already infected. By reason of the working and living conditions, they are more likely to contract tuberculosis, among other diseases.

A survey conducted in Diadema in 1974 disclosed that the increase in positive reaction to PPD is commensurate with the increase in the age of the students. The degree of change was from 3.5 percent in the lowest age tested (7 years) to 12.6 percent in the highest (14 years).

CAPE VERDE

EFFORTS TO CONTAIN CHOLERA OUTBREAK

Bissau NO PINTCHA in Portuguese 18 Dec 76 pp 3,6

[Text] In an interview given to the VOZ DI POVO, Comrade Faustino, minister of health and social affairs of the Cape Verdian Republic, focused on a grave problem for the people of Santiago Island, the problem of cholera and its causes and effects. He described the X-ray identifying the problem. He also spoke about the measures taken to combat it. This fight, which has been begun and which continues to be carried out, must be the most effective, enlightening, prompt and efficacious possible in order to avoid what could be more serious illnesses.

Simple Measures of Hygiene To Prevent Cholera

VOZ DI POVO--We know that a relatively short time ago the Ministry of Health and Social Affairs launched an organized campaign for the purpose of preventing the incidence of diarrhea. At the time, we made several appeals to the public. We would like the minister of health and social affairs to bring us up to date on this problem.

MANUEL FASTINO--Yes, in fact, some time ago my ministry launched a campaign to prevent the incidence of diarrhea by trying to alert the people to the dangers to which they were exposed and, at the same time, to recommend the measures to be adopted to avoid such a state of affairs. It stands to reason that these measures began to be carried out (especially the awareness campaign and other steps) at the beginning of September.

We all know that at this time of the year, the hottest in our country, which continues through September and October, the incidence of diarrhea is very frequent. But a fundamental reason led us to launch this campaign once we had detected the specific types of diarrhea which had a particular characteristic.

To begin with, we found out that despite the increase in diarrhea incidence, which would be normal at this time of the year, it was following a rather alarming course, and some time later, we were informed of some suspected cases of cholera.

Our diagnosis, therefore, could only be a clinical diagnosis, that is, one based on the symptomatology that the sick persons manifested and, in given cases, on the specific type of diarrhea. However, at a certain point, we received laboratory confirmation and some cases were in fact diagnosed as cholera. Consequently, it became necessary to make use of the means we had at our disposal in order, on the one hand, to alert the people (this, in fact was done even before the laboratory confirmation that we were faced with an outbreak of cholera) and, on the other hand--the most important--to safeguard their health.

This is the main purpose that led us so urgently to launch a campaign for mobilizing and alerting and also for safeguarding the people at large, particularly on the Island of Santiago. However, it should also be mentioned that the preventive measures also included other islands. We can thus sum up the objective of our campaign, or the greatest concern in this campaign, by asserting that it was motivated, in the first place, by the clinical suspicion of cholera, which was later confirmed. This is why we are now speaking specifically of cholera instead of speaking about diarrhea.

V.P.--Comrade minister, we would like you to mention specifically the causes of the situation exposed.

M.F.--Very well, if we wish to face the problem to its fullest extent, we shall say that the causes are essentially socioeconomic. We said, essentially, and further on we shall explain why, for we can state beforehand that this is the type of disease that results from very deficient hygienic conditions, very poor sanitary conditions, although there is an agent, a microbe, or a microorganism which is the transmitter of the disease.

This agent, however, exists only when there exist conditions in which it can develop, that is, when wholesome conditions do not exist, when sanitary conditions are deficient, when the rules of elementary hygiene are not observed; when, in fact, people are ignorant of certain risks to which they are exposed and which, consequently, they do not take the necessary precaution to combat. We can, therefore, make it clear that there is an ecological agent, or rather, a causative agent of the disease, which is the vibrio. But, first of all, this vibrio exists only under the above-mentioned hygienic conditions, and secondly, it is transmitted only when the elementary hygiene measures are not observed. For example, when the slightest care is not taken with the

water consumed, when the slightest care is not taken even to wash one's hands after using the bathroom. That is to say: relatively simple, quite simple measures which anyone can observe. In the final analysis, the problem can be reduced to socioeconomic questions because we know that it is lessened or even eliminated in places where there is running water, because of the care taken with the piping and impounding of water, which in principle protects the water from contamination, from the vibrio, for example, the cause of cholera. However, it is worth pointing out that from this standpoint, the problem should be considered socioeconomic once we know that an overwhelming majority of the people do not have the economic means at their disposal to be able to afford a water pipeline, etc.

But it is obvious that the problem cannot be reduced to this aspect only, because, we again emphasize, there do exist some rather simple measures, which in the present Cape Verde case, the greater part of the people know --practically the whole population, except, perhaps, the children. All are aware of them and adhere to the tiniest rules of hygiene. Consequently, even though they know that there are difficulties connected with the water supply, etc., the people are aware of the simple, elementary hygienic measures which, in fact, should be observed. And it is on this basis that we can declare that, in the final analysis, the question becomes a socioeconomic problem. But there is also the immediate possibility--even without the conditions I mentioned a short while ago--of combating and preventing these situations.

The Developing of the Disease in Santiago

V. P. Comrade Minister, at the very beginning of our talk, we spoke about diarrhea. A short while ago, you mentioned cases of cholera with the result that we noticed a certain development of the disease. We would also like you to make some remarks on this subject.

M.F.--As I said at the beginning, the main cases suspected of being cholera were found in Santiago, from 10 September on. At that time, those detected were in the Santa Cruz municipality, or more specifically, in Pedra Badejo. As soon as more cases were detected, measures were taken not only to care for the persons affected by the disease but also for those suspected of having cholera.

Some time later, because of the very mobility of the population in Santiago, the problem hit other municipalities, especially the Praia municipality, and later also reached the Tarrafal municipality and soon after, the municipality of Santa Catarina. This means that, erupting first in the Santa Cruz municipality, the outbreak gradually spread out and ended by invading practically every municipality on the island.

The basic reasons, which we explained above, and which contributed to this evolution, were seriously aggravated by the floods which for some time had been inundating Santiago.

We all remember that the floods were uncommonly violent to the point of submerging various wells. Consequently, the drinking water was contaminated, and on the other hand, the continuance of the waters from the streams for some time led some persons to drink this water, which, as it had crossed over several contaminated areas, ended, let us say, by spreading or seriously contributing to the spread of the outbreak throughout the island.

This means that we had here an aggravating factor, namely, the violence of the rains which, on invading the wells and dragging with them no end of filth, polluted these same wells and led to the people's drinking contaminated water.

Vigorous Campaign to Eradicate the Epidemic

"Meanwhile," continued the comrade in charge of health and social affairs, "steps were taken particularly to alert the people to the need for hygienic precautions, such as the sterilization of drinking water with two drops of lye; explaining to the people the steps that they should take regarding the cleanliness of the surroundings, because if this water is polluted it has gone through areas where the people throw all kinds of debris without the least precaution. The water, therefore, on flowing through, became polluted and the people on drinking it, suffered the consequences, thereby becoming themselves the transmitting agent of the disease. The latter, because they continued to pollute the water either by throwing all kinds of waste matter into it or by not observing the prescribed hygienic measures, which inevitably led to several members of the same family, living under the same roof, finally contracting the disease. Thus it was that some time afterward, because of the violence of the rains which again began to fall, the outbreak reached proportions which though not alarming, were nevertheless disturbing.

Some time later, although the situation was at first more or less under control in the Santa Cruz municipality, more specifically in Pedra Badejo, in the Orgaos district of the same municipality, there now suddenly broke out some acute suspected cholera cases, which also resulted in some deaths. This motivated our vigorous campaign in this municipality.

INDIA

JAUNDICE OUTBREAK REPORTED IN INDIA'S BIGGEST RESIDENTIAL COLONY

Delhi NATIONAL HERALD in English 28 Dec 76 p 1

[Text] New Delhi, 20 December--Jaundice has assumed epidemic proportions in Janakpur, the biggest residential colony in the whole of Asia. About 300 persons--men, women and children--are feared to be suffering from the disease.

All the private medical practitioners as well as the municipal dispensaries in the area have received a number of cases every day for the past few weeks. New cases are also being reported daily.

According to the residents of the colony, the source of the disease is polluted water supply. They fear some leakage in the trunk water-main, through which sewer water and other foreign elements are reaching their homes.

As new cases are coming up every day, residents have become panicky. The residents' welfare associations today approached the zonal health officer, who visited the colony. He is reported to have recommended prompt remedial measures, failing which the situation might take a grave turn. A communication on behalf of the association along with the recommendations of the health office was handed over to the municipal commissioner, Mr. B. R. Tamta, for prompt action.

Meanwhile, the association has appealed to the residents to boil water before using it for drinking and cooking purposes.

INDONESIA

TIMOR CHOLERA EPIDEMIC

Hong Kong AFP in English 1907 GMT 18 Jan 77 BK

[Text] Jakarta, January 18 (AFP)--The cholera-like disease which broke out last Christmas day in the former Portuguese enclave of Oecussi (Timor) has claimed the lives of 123 people, it was reported here today. Health authorities in Timor have cabled for urgent supplies of cholera vaccines and antibiotics to check the spread of the disease. Authorities in neighboring Sumba Island, 250 kilometres west of Timor, have also reported an outbreak of cholera in the island. By Monday a total of 18 villagers have been positively declared cholera infected. [as received]

IRAN

CONFERENCE ON FIGHTING MALARIA

Teheran TEHRAN JOURNAL in English 22 Dec 76 p 3

[Text]--Teheran--A regional conference on malaria will be held in Teheran on Saturday, a spokesman for the Ministry of Health announced yesterday. She said that the week-long conference will be attended by experts from Iran, Pakistan and Afghanistan to formulate a joint plan for the eradication

of the disease on their common borders. The official said that efforts to launch a concerted malaria eradication program will be undertaken by the delegates.

NUMBER OF INFLUENZA CASES OF TEHERAN DECREASES

Teheran ETTELA'AT in Persian 23 Dec 76 p 32

[Text] The heavy snowfall in Teheran has reduced the severity of the influenza outbreak. The daily earnings of drugstores in Teheran have amounted to one million tomans with the outbreak of influenza in Teheran. Doctors specializing in contagious and infectious diseases announced in this regard that, because the influenza virus is dispersed in the air, through the fall of the snow and the rain and the clearing of the air during the last 2 days, with the weakening of this virus, the number of people suffering with influenza has decreased perceptibly to the point where one can say that the statistics on those afflicted have dropped 50 percent compared to several days ago.

Outbreak of Influenza

A WHO report published regarding the outbreak of influenza states that, in the countries of the north temperate hemisphere of Europe, a type of influenza virus, "Type B," has become prevalent, and influenza has been seen in epidemic proportions on the African continent in the Canary Islands and Central Africa; on the American continent in Argentina, Puerto Rico, and Chile; on the Asian continent in Taiwan, India, Malaysia, South Korea, Singapore, Thailand and several other countries; and in Europe in Austria, Germany, Finland, Greece, Italy, Norway, England and several other countries.

Moreover, a director of a drugstore chain said today that, from the middle of the month of Azer [22 November-21 December] up to now when influenza gripe and other seasonal illnesses have been prevalent, drugstore sales have increased 25-30 percent, and this increase is related to the outbreak of these illnesses and, for the most part, the medicines which have been consumed consist of antigripe medicines, various types of Vitamin C and various types of antibiotics.

Calculating that in Teheran there are 450 drugstores whose total daily sales exceed 800,000 tomans, with the 20-30 percent increase over this amount, the amount of their daily sales has reached 1 million tomans.

KENYA

CHOLERA REPORTED IN SIAYA DISTRICT

Addis Ababa THE ETHIOPIAN HERALD in English 25 Dec 76 p 6

[Summary] Nairobi (AFP)--More than 400,000 people in Siaya district on Kenya's Lake Victoria basin will not celebrate Christmas this year following a ban on market activities and Christmas ceremonies throughout the district due to a reported cholera outbreak.

Siaya district commissioner Johnston Njoroge has banned market activities at 233 open air markets and threatened to close 300 primary and secondary schools in the district unless a minimum of ten pit latrines are constructed at each institution.

Mr Njoroge said that the cholera ban on public meetings would not affect the current branch elections of the sole ruling Kenya African National Union (KANU) party due to take place in the district in the next few days, but warned that politicians should not make political capital out of the ban. However, political pundits in the district see the ban as an attempt to prevent certain individuals from campaigning for positions in the party leadership. The five Siaya members of parliament are meeting the district commissioner in an attempt to have the ban rescinded.

The open air markets look like "ghost places" according to travellers reaching the capital from the affected areas.

Siaya county council, whose major revenues accrue from market fees, is threatened with collapse unless the central authorities intervene in the matter. A council spokesman said the council is to send a delegation to the local government minister to seek a loan of \$12,500 to enable it to construct more pit latrines in the markets.

MALAYSIA

CHOLERA IN SABAH

Hong Kong AFP in English 0610 GMT 10 Dec 76 BK

Kote Kinabalu, Sabah, 10 December--The Ministry of Health today declared Sabah a cholera-infected area following the confirmation of 11 cases of the disease in the Semporna and Lahad Datu Districts of the state's east coast.

QATAR

MEASURES TAKEN AGAINST CHOLERA

Doha AL-'ARD in Arabic 2 Nov 76 p 11

[Text] Dr Sayyid Taj-al-Din, the director of preventive medicine at the Qatari Ministry of Health, has stated that the ministry has taken all the precautions necessary to prevent the infiltration of cholera to the country. Dr Taj-al-Din also said that 2 days ago the ministry began an anticholera vaccination campaign, in addition to the continuous health education campaigns being conducted by the ministry among the citizens in order to acquaint them with the dangers of this epidemic and the measures that they should adopt in this respect. The Ministry of Health had earlier declared that the State of Qatar is completely free of this epidemic.

TURKEY

RUMORS OF CHOLERA IN HATAY PROVINCE

Istanbul CUMHURIYET in Turkish 9 Dec 76 p 7

[Letter signed by Rusen Bagatur, Kanatli Ave. 63, Reyhanli: "Is It Cholera"]

[Text] I am writing from the Reyhanli District of Hatay, the country's southernmost point. I would like to tell you about an incident I encountered. On the evening of 10 October 1976 I went to visit a friend of mine in the Yenisehir section of our district. At about 2300 hours we heard excited voices coming from the neighbors. A beautiful, blond, blue-eyed little boy, about 2 or 3 years old, had become ill. The child was losing a continuous stream of body fluids through both the mouth and rectum. It was thought that he had been poisoned and he was taken to the hospital. A child of this age could not possibly have drunk that much fluid. We were panic-stricken. A few of us ran to the hospital. The hospital, like all hospitals in our country, lacks upkeep, resources, and staff. No one was there except for one intern and one orderly. They gave the child about two liters of serum. I read the word "cholera" on the label of the serum bottle. The doctor was exhausted from lack of sleep and from the effects of drugs he had taken to protect himself. With superhuman effort and little else, he was performing miracles. More than 20 patients had come to the hospital in the past few days. He saved them all. Several patients who had to be sent to better-equipped hospitals died. There are still a few patients in the hospital with the same disease.

From what I could gather, there were nine who died.

These people are our people. The authorities are still silent. Their little problems always came first. Worrying about votes, worrying about foreign exchange, trying to protect the prestige they do not have. The people are not informed, do not know that they are in great danger. The authorities, "those who govern," are cruelly negligent of the little people of this country.

We are the people of a country where even the Minister of the Interior has fallen ill with a "contagious disease." This country is a country of high infant mortality, of low life-expectancy, and of well-to-do who want for nothing. Surely some day, the high rollers who trifle with the lives of our little people will realize that they are sadly mistaken. Because there are also in this country those who with the cry of "happiness," have taken up the banner against the misery of the people. Because there are also those in this country who with the cry of "happiness," have vowed to fight the "lack of communication" with the people.

I have a question to ask the public servants who do not serve the public; but I will get no answer, or they will try to pass it off with the lie about "intestinal infection."

MEASLES SPREADING IN ERZURUM

Istanbul AKSAM in Turkish 14 Dec 76 p 5

[Text] Erzurum (Turkish News Agency)--With the onset of cold weather the seasonal diseases have come, and while chicken pox is running rampant through central Erzurum, every child in the village of Tuzluca in Cat District is infected with measles, and four of them have lost their lives.

Authorities announced that the 105 children in the village of 500 have contracted the disease and confirmed that 4 children have died. The Tuzluca health officer appealed to the Health Directorate for assistance.

A health team was sent to the village from Cat to curb spread of the disease. According to information obtained, a sufficient amount of measles vaccine was sent to the village earlier but was not administered in time. It has been learned that the health personnel in Cat are being investigated on charges of neglect of duty.

HEPATITIS EPIDEMIC SEEN IN ERZURUM

Istanbul AKSAM in Turkish 24 Dec 76 p 1, 7

[Text] Erzurum (Turkish News Agency)--A hepatitis epidemic has struck Erzurum and the surrounding area. More than 1,000 cases of hepatitis have been diagnosed in the past two months at various health institutions.

The disease is spreading primarily among children and 143 children from the Erzurum child care center and other areas have been placed under observation, it was learned.

Prof Dr Gulden Tanyeri, teaching member at the childrens clinic of the medical faculty's model hospital who gave information about the disease to a Turkish News Agency correspondent, said there was a great possibility that impure water had led to the disease. "In our research on infectious hepatitis and serum hepatitis, we found that this disease, called the yellow disease, is widespread. Many patients have been admitted to the health institutions in the past two months. I believe that impure water is causing the disease. In our service, also, we have treated a great many children. So far, there have been no deaths caused by the disease. However, we may find ourselves up against a deplorable situation if preventive measures are not taken at once," he said.

MEDICAL PROBLEMS IN EASTERN TURKEY DISCUSSED

Istanbul AKSAM in Turkish 1 Jan 77 pp 1, 7

[Article: "In the East There Is One Doctor for Every 20,000 People"]

[Text] Erzurum TURKISH NEWS AGENCY--After research, it has been determined that in the eastern Anatolian region, there is one doctor for every 20,000 people; the application of socialized medicine is not working well and only one-fourth of the health clinics in the area are operational.

According to the studies conducted individually by TURKISH NEWS AGENCY correspondents in Erizincan, Sivas, Agri, Kars, Hakkari, Tunceli and Mus provinces only Erzurum and the Center have doctors from all branches of medicine whereas Kars, Agri, Tunceli and Mus provinces have shortages of specialists in obstetrics and gynecology, surgeons, otolaryngologists and other related specialists.

According to observations, along with the shortage of doctors, one of the leading problems which obstructs health services to a great extent in the east is the poor quality of the roads. Especially during the winter months the interruption of communications between centers prevents timely diagnosis and treatment and for that reason increases the death rate.

UNITED ARAB EMIRATES

ANTI-CHOLERA MEASURES TAKEN

Abu Dhabi AL-ITTHAD in Arabic 30 Oct 76 p 4

[Text] The Ministry of Health has decided to take all preventive measures against any potential outbreak of cholera, after cases of the disease appeared in several bordering countries. Dr 'Abd-al-Rahim Ja'far, representing the ministry, announced that 700,000 doses of cholera serum will be imported from the Arab Republic of Egypt.

A quantity of that serum, amounting to 30,000 doses, arrived yesterday.

A study is now underway for the establishment of centers in various parts of the state in order to be prepared to inoculate the citizens immediately after the appearance of any case of the disease.

The police have issued instructions to the police stations at the land border entry points to prevent the passage of any vegetables coming from the bordering countries, in accordance with the directives of the Ministry of Health, in order to keep the disease from penetrating the country.

Dr 'Abd-al-Rahim Ja'far stated that fresh vegetables are one of the most serious ways of transmitting the disease to a human being.

Dr 'Abd-al-Rahim stressed the necessity of being careful to clean and wash the vegetables thoroughly before they are eaten.

He said that he felt it was a good idea to add a small proportion of potassium permanganate to the water used to wash vegetables and that the ministry has asked the Water and Electricity Department to increase the chlorine content in the water supply system as a preventive measure against any diseases.

On the other hand, the inoculation centers of the Preventive Medicine Service are beginning today to receive all Moslems who desire to fulfill the religious obligation of making the pilgrimage to Mecca this year to take the necessary anti-cholera doses. Instructions were issued to airlines and pilgrimage agencies not to permit any person to travel to Saudi Arabia to fulfill the pilgrimage obligation unless he has obtained a certificate of inoculation showing he has had two doses of the cholera serum.

An official source in the Preventive Medicine Service stated that these are merely preventive measures ensuring that everyone will have a good pilgrimage.

II. ANIMAL DISEASES

BRAZIL

CATTLE DEATHS ATTRIBUTED TO DISEASE, INADEQUATE NUTRITION

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Dec 76 p 33

[Text] LONDRINA--Approximately 30,000 head of cattle died in Parana during the past winter for lack of pastures and an increase in the incidence of infectious-contagious diseases. In addition to that situation, only now being disclosed by the Animal Sanitary Defense Service of the State Agriculture Secretariat, the livestock-raising sector faces another problem: 10 percent of the bovine herd of Parana--300,000 head of cattle--is afflicted with brucellosis, which represents a loss to the local economy of more than 600 million cruzeiros.

According to technicians of the Animal Sanitary Defense Service, in the sandstone region of Caiua alone, between Paravavai and Umuarama in the northeast of the state, the number of animals which died between May and September is estimated at more than 20,000 head.

"That mortality occurred," said the technicians, "as a result of nutritional deficiencies produced by the prolonged winter, which, though not having drops in temperature as low as last year's, was of much longer duration. Thus, the damage caused to pastures throughout the state was very great, even bringing about a reduction in the productivity of the bovine herds."

Brucellosis is transmitted by the ingestion of contaminated food, and, although the disease does not cause the death of the animals, it can produce great losses to the livestock-raising sector by reason of its consequences: abortions, and sterility of animals of both sexes.

Although it was determined at the beginning of the year that 10 percent of the bovine herd of Parana was infected, nothing has been done to date to combat the disease, and technicians fear that ratio will increase if urgent measures are not adopted.

According to veterinarian James Jung of the Agriculture Secretariat, a curative treatment for brucellosis still has not been discovered. Hence the necessity of urgently starting a preventive campaign by vaccinating the herd with live B-19 bacteria. He explained that in addition to the cattle, that disease can also affect human beings through the ingestion of beef, milk and their by-products, rendering them sterile.

Within the next few days, the Agriculture Secretariat is going to start a pilot program in Cornelio Procopio and Jacarezinho, in the north of the state, to vaccinate the herd. After those areas, the program should move on to the cities of Londrina Maringa and Paranavi [sic], reported veterinarian Luiz Francisco, of the Antibrucellosis Coordination Office of Parana.

EAST GERMANY

POULTRY VACCINATION AGAINST MAREK'S DISEASE

East Berlin BERLINER ZEITUNG in German 22/23 Jan 77 p 13

[Excerpt] Since 1972 all laying hens involved in the GDR's poultry-breeding industry have been immunized against Marek's disease, a virus-induced epizootic with malignant tumors in the internal organs or the outer skin. As reported by scientists of the Friedrich Loeffler Institute for Animal Epidemics, Island of Riems, GDR Academy of Agricultural Sciences, in the December 1976 issue of the periodical VISSSENSCHAFT UND FORTSCHRITT, it has been possible to reduce the incidence of the disease by 90 percent since immunization was introduced.

FRANCE

FIGHT AGAINST RABIES EPIDEMIC

Paris LE MONDE in French 1 Jan 77 p 8

[Article by Nicolas Beau: "Efforts to Combat Rabies Described"]

[Text] Bounty of 30 Francs To Be Given Those Who Destroy Foxes in Regions Threatened by the Disease

Although in 1968 only the Moselle was affected by rabies, an edict published in the JORNAL OFFICIEL of 30 December 1976 listed 37 departments "affected or threatened" by rabies, where a bounty of 30 francs would be paid to any person furnishing proof of the destruction of a fox. This stimulative measure was instituted because of the 2,697 cases of animal rabies counted in 1976, of which 2,137 occurred in foxes. The role of ecological balance disturbance in this continuing spread of rabies among animals was emphasized by Veterinarian Andral at the recent annual meeting of the Society of Comparative Pathology held at the Pasteur Institute.

For Veterinarian Andral, who works at the Nancy Center for Rabies Studies, the basic disturbances in the ecological balance which have affected the fauna and flora during the last decade have largely contributed to the spread of fox rabies. Man has made arbitrary selections among the predators: birds of prey, wild boars, and wolves have been among the harmful species sought by hunters, while the picture of the fox in the hen house rather leads to a smile.

At the same time, the mechanization of farming, though efficient, results in a higher percentage of loss than do the traditional procedures. Rodents and other species pursued by the fox feed more easily and multiply, and fox litters are larger when prey is abundant. Hunters and farmers have thus contributed, in their own way, to the multiplication of these animals. Further, "excessive cutting" in some forests has increased the number of forest skirts where foxes prefer to have their dens.

The Fox Cub in Search of His Territory

The large number of foxes, favored by men themselves, has contributed greatly to the spread of rabies in our country. The spread of this disease has been at a rate of 30 to 40 km per year. Fox cubs are born in early spring and are scattered by the mother nipping them with her teeth at the end of autumn. Since biting is the most common way of spreading this disease, these animals are infected. The fox has a territory inside which it hunts and feeds.

Each new generation runs into adult foxes that have appropriated for themselves the areas around dens. In search of new territories, the fox cubs disperse, thus spreading the disease.

Dr Andral considers it a good idea to give a bounty for all foxes killed, but he considers that we should prevent the destruction of some species, like the birds of prey, in order to reestablish a balance among the predators. On finding food more difficult to obtain, the foxes will have two or three cubs in their litters instead of eight to ten.

Preventive Vaccine for Domestic Animals

If the epidemic of rabies can itself eliminate enough foxes so that the disease is no longer transmissible, then 3 years later, the foxes that have survived will reproduce sufficiently so that the younger generation will again spread out and the disease will recur. Therefore it is important that in the departments where rabies is no longer evident that special vigilance should continue to be shown.

This vigilance is called for primarily in the regions concerned, essentially in the North and East of France, by preventive vaccination of all domestic animals that can be infected by foxes. Effective for a limited period, the vaccine, not very costly in itself, increases in price because of the often tedious call on a veterinarian and all the more so because the vaccination must be redone each year. For this reason many cows, horses, and pigs have not been vaccinated. At Besancon a riding club had to close after the death of one of its horses from this disease.

The vaccination of humans should not be considered as a routine procedure except for certain professions where persons are exposed, e.g. veterinarians and anti-rabies center personnel. In other cases the treatment should not be undertaken except for persons who are infected, generally by a bite, or for persons suspected of being infected. Dr Gamet of the Pasteur Institute has emphasized that we have to appreciate the risk as well as the precise diagnosis and that the five thousand treatments given since 1968, the date of the rabies outbreak, have often seemed to him to be useless. The treatment for rabies is long and painful, but development of two new vaccines, one by the Merieux Institute and the other by the Pasteur Institute, should decrease the number of injections and the [painful] secondary effects.

VIETNAM

LOCALITIES STOP SPREAD OF EPIDEMIC OF LIVESTOCK DISEASES

Hanoi NHAN DAN in Vietnamese 9 Dec 76 p 3

[Text] A number of pockets of contagion recently appeared in the provinces in the current epidemic of livestock diseases. Localities quickly concentrated forces on and properly organized preventive inoculation and containing of the epidemic. So far, although the general situation of the epidemic has become less alarming, localities have been keeping a close eye on the situation, maintaining the system of reporting from the cooperatives to the provincial and central levels, making early diagnoses and discoveries of diseases, taking quick measures to contain and to neatly stop the spread of the epidemic right after it had broken out, properly carrying on control of the epidemic in slaughterhouses and maintaining tight management of transportation of domestic animals from one area to another. Those localities

where preventive inoculation had not been properly carried out in the last autumn crop season have organized supplemental inoculation programs aimed at checking in time the spread of diseases, particularly hog cholera, swine erysipelas, anthrax and "ung khi than," which are the diseases that normally appear and quickly spread during the winter-spring crop season.

III. PLANT DISEASES AND INSECT PESTS

BRAZIL

INADEQUATE CONTROL MEASURES THREATEN SPREAD OF COFFEE DISEASE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 21 Dec 76 p 48

[Text] LONDRINA--The lack of definite control and research to combat *pseudomonas garcae* (areolate spot), the bacteriological disease which is affecting the coffee plantations of the north of Parana, Sao Paulo and Minas, could result in a wider spread of the disease to become the greatest concern of coffee planters. At least that is the impression of the technicians of the Agronomic Institute of Parana (IAPAR) in Londrina, which only now is beginning to carry out research to combat the disease that still is little known and has, according to statements of rural leaders, already affected more than 20 percent of Parana's plantations.

The IAPAR phytosanitarian Suryadevera Mohan explained that though the disease first appeared in Brazil at Garca, Sao Paulo State, in 1956, the country still does not have "a definite control for the eradication of the aerolate spot." A study by the Agronomic Institute of Campinas and the Biologic Institute of Sao Paulo notes several compounds containing copper salts and streptomycin to control the disease. Technicians of the two institutes concluded, however, that streptomycin did not give positive results, a fact which is contested by the IAPAR. The latter's technicians assert that "we are developing a formula, already recommended to growers, with a compound of copper salts and antibiotics based on streptomycin."

The IAPAR study was begun in September, when the bacteriologic disease began to appear more intensively in Parana because of the hot and humid climate. "A month ago we started advising coffee planters to start using those compounds, and since then we have noticed that the incidence of the disease has been slightly reduced although large coffee areas are involved," said a technician of the institution, who added: "The main problem, however, is the

lack of knowledge of some technicians and growers who are using fungicides to control the plague, thus wasting time and money besides creating conditions which favor a greater spread of the aerolate spot."

For lack of research in that field, the technicians of the IAPAR cannot estimate the potentiality of the bacteria, but they fear that it will, mostly as a result of that deficiency, spread still more, surmounting obstacles and turning into the main problem of Brazilian coffee cultivation, with more harmful effect than the rust and the Minas bug.

In addition to chemical control, the technicians are studying sources of resistance, seeking adequate varieties for genetic improvement. Up to now, however, those experiments have not achieved any positive results.

According to the explanation of the IAPAR technicians, none of the coffee varieties tested showed up to be resistant to the disease. The varieties tested in the process were the new world, the yellow and red Catvai, and the red bourbon. All of them are susceptible. Only the eugeniodes species, which is not grown in Brazil, proved to be resistant.

MINAS PROGRAM TO FOCUS ON INSECT CARRIER OF CHAGAS' DISEASE

Rio de Janeiro O GLOBO in Portuguese 26 Dec 76 p 16

[Text] BELO HORIZONTE--Up to 1978, the north of Minas will be protected against the "barbeiros" [Conorhinus, syn. Triatoma, megistor], the insect which transmits Chagas' disease and constitutes the most serious problem of the region, according to a report submitted by the Superintendency for the Development of the Northeast (SUDENE) to the Planning Secretariat of Minas Gerais. The strategy that will be employed starting next January will consist of a campaign against the sources of the "barbeiro" with BHC and the establishment of support and vigilance centers.

The program has been already implemented on a lesser scale in Jequitinhonha Valley, also in Minas, with excellent results. In 1972, Jequitinhonha Valley showed a "barbeiro" ratio of 9.6 percent in the homes, and information obtained from the Health Secretariat of Minas indicates that the ratio dropped to 1 percent by May 1976.

Drought Area

The situation is much worse in the north of Minas. The section comprises 42 municipios in a total area of 120,700 square kilometers, with a population of about 1 million inhabitants. With 70 percent of them living in rural areas there, the ratio is 32 percent of the dwellings infested by the "barbeiro."

The Ministry of Health maintains in the Minas area of the SUDENE 9 medical units having a total of 100 beds, directly serving the population of 303,274 inhabitants. The ministry spent a total of 14,403,666 cruzeiros to operate those units in 1976, providing medical assistance in 324,922 instances.

The Medical School of Northern Minas, located in Montes Claros, also will be brought into closer association with the health problems of the region through an agreement signed with the Ministry of Health for the development of the Academic Assistance Area (ADA) project designed to restructure the medical curriculum, adapting it to the needs of the area and the creation of a health science center.

The operational capability of the agencies of the Ministry of Health to combat the insect which transmits Chagas' disease is curtailed by the reduction in the production of BHC, an effective but scarce insecticide. According to the Northeast Health Coordination Office (an agency of the Ministry of Health), Brazil requires 3.3 tons [sic] of BHC and world production is estimated at 3,000 tons annually, of which one-third is acquired by our country.

The main reason for the drop in production of the insecticide is the anti-pollution campaigns being conducted throughout the world, but the Northeast Health Coordination Office estimates that the installation of the petrochemical complex of Alagoas will make Brazil self-sufficient in BHC by increasing the production of chlorine, an essential element in its manufacture.

CSO: 5400

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